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*A PATRIOTIC PASTIME*

*Wm. F. Kline*

# The Photographic Times

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## THE POPULAR ELEMENT IN PICTURES.

BY SIDNEY ALLEN.

**D**URING my long career as an art critic, I have found that the principal drawback for a more general appreciation of art, in all its various phases, consists of a lack of sympathy that seems to exist between the picture makers and the art-loving public. Both parties apparently have an eternal grudge against each other. The picture makers complain that the public does not understand them when they are at their best, and that they have to make all sorts of concessions to the public taste in order to be successful. The public on the other hand complain that the picture maker has but little consideration for their esthetic wants, and that he often produces things that are absolutely meaningless to them.

Both in a way are right. The picture maker paints, draws, or photographs what he likes, and being all wrapt up in the various processes of his medium, he is apt to take special and often undue pride in mere technical performances. He sees beauties in objects and things that do not have the same pictorial significance to the layman, who can hardly be expected to be as well versed in art principles and art processes as the professional. The public wants something

that appeals to them at the first glance, without necessitating much mental labor. What interests them in a picture is rather the general impression they gain from it than the way this impression has been conveyed to them. The layman necessarily remains somewhat ignorant on pure technical accomplishments. And yet there are pictures that satisfy all technical demands, and nevertheless enjoy popularity as some of the paintings that illustrate this article. What is it that makes them popular?

Expressed in as simple words as possible, I would say that they possess a broad human interest of one sort or another that appeals to a large majority of people. There is something in every one of these pictures that interests the beholder aside of any pleasure that he may derive from the way it has been accomplished. This quality every picture should have. It should not only represent something but also mean something, and it is this which most picture makers seem to forget.

The picture maker is after all dependent on the public. There is no getting around the fact. Of course if he is absolutely bent upon going his own way, there is no use advising him. On the contrary he is to be admired for his





MOTHER AND CHILD.

Geo. F. Brush.

courage and obstinate belief in himself, but at the same time he has no right to complain if the public fails to understand and patronize him. Yet there is no reason why a picture maker should not entertain very high ideals about his art and yet conform them to the taste of the public—to a certain extent. It is my contention that all our better artists have done so, and that there is really no good picture made without possessing something of that popular element.

I am perfectly aware that also the lowest forms of art have this note of popularity. For instance the "oil paintings" that are sold for sixty-nine cents in the department stores. They are

hopelessly bad and yet they sell. Why? They fill a certain want. They are made to satisfy the crude taste of people who know nothing whatever about art and yet have a certain desire for pictorial embellishments, and I believe the majority of people who buy them find a certain satisfaction in possessing them. It is a color spot no matter how inharmonious, and in a vague way the picture means something to them. For these pictures always represent a distinct scene; it may be a cottage with lighted windows in a snow landscape or a lake with green banks, overhanging trees, and a sail in the distance. It portrays an idea true enough of the lowest order and



WHAT THE SHELL SAYS

*Eastman Johnson*

yet—nobody can dispute it,—a poetical idea, such as hundreds of paintings and photographs of high finish and exquisite workmanship lack—completely lack. In every exhibition I wonder at the scarcity of ideas expressed. I of course can admire the clever spacing, the subtle appreciation of values, the tonal quality, the feeling for line, etc., in the various pictures, and no doubt get my share of enjoyment out of them, but what of those people who lack the more intimate knowledge of art and yet have good taste. Must not such an exhibition appear rather uninteresting and bald to them, and who is to blame, they or the picture makers.

There are a number of subjects which

never fail to interest the public, not so much because they are of a story telling nature, but because they contain something that strikes a sympathetic chord in nearly every beholder, and if we should go to the trouble and examine the pictures that enjoy popularity, and fame in the annals of art, we would find out that the majority of them treat one or another of the subjects that I shall now endeavor to classify in a general way.

The Mother and Child picture will always be popular. It contains a sentiment that appeals to all, and of which we never grow tired. It is the modern version of the Madonna picture. The Madonna picture although paying due respect to the beauty of motherhood was



THE FIFER

*Eastman Johnson*

after all an expression of religious sentiment. The Mother and Child picture is a glorification of modern home life, more realistic perhaps but at the same time more nearly selected to our feelings of to-day. George de Forrest Brush and Abbott Thayer owe their reputation largely to their varied treatment of this subject.

Another subject always sure of success is the pretty women. It is as irresistible in art as it is in life. Ideal heads, fancy studies, and decorative arrangements may be interesting, but they will never be popular unless they depict a pretty woman. Also children pictures enjoy great popularity. Make a character

study of an old man, a peasant woman and a child; the child will always win out, and the more naturally the child is depicted, the better it will be liked as a picture. In portraiture—I don't know whether it is more the fault of the parents or the photographers—dressed up mannikins in unnatural poses seem to be still the ideal.

A portrait is only popular when it depicts a popular personality. It may attract attention from purely technical reasons, but these will appeal to comparatively few, and there is really nothing more monotonous and tiresome than to walk through a picture gallery consisting mainly of portraiture.





EMBERS

*Eastman Johnson*

The story telling picture always makes a hit with the public. It gives them something tangible. It represents a phase of human life. They can study it out, muse and laugh over it. It is like a pictorial glimpse into a novel. Modern picture makers taboo this kind of subjects but pictures like Eastman Johnson's "Embers," "The Fifer," and "What the Shell Says," will always find admirers. There is no reason why they should not be well painted, but somehow well painted genre picture as those of Eastman Johnson are exceedingly scarce. The story of a genre picture should be easily comprehensible and as simply told as possible.

Wm. F. Kline's "A Patriotic Pastime,"

is a beautiful picture, but it could never be as popular as "What the Shell Says." The Kline picture appeals only to the true American, the larger part of our alien population would pass it with indifference, while the Eastman Johnson would appeal almost to every one. All advertising pictures, and to a large extent also all magazine illustrations are selected from that view point. So it is well to study genre subjects from a similar view point. And there is still another material difference; the late Eastman Johnson did not only make a lasting reputation for himself, but owned a brown stone mansion, while painters who, like Kline, do not master the note of popularity equally well, have to be satisfied



HAULING THE LOG

*Horatio Walker*

with a decidedly smaller share of worldly possessions.

In landscapes, more than in any other branch of pictorial art, an utter disregard for any popular element is noticeable. The makers of landscapes seem to think that everything in nature is pictorially of interest. Our best landscape painters only paint for connoisseurs, and the average landscape painter and also photographer apparently considers one view as good as any other. No wonder that nobody cares to patronize them. A landscape must have a point of popular interest, or it will fail to arouse any feeling of appreciation by the general public. The peculiar shaped tree, the road leading to a farmhouse, the snow landscape, the sunset, the elliptical lake of Corot, the flock of sheep, may have been in evidence, but a landscape must contain

some element of interest like these, or it will remain uninteresting, a mere study.

It is the same in cattle painting. The group of cows near a fence still holds its own, and a picture like Horatio Walker's "Hauling the Log," could never compete with it for popularity. In marines the shore with the incoming breakers, and harbor scenes with fishing smacks are still most in favor.

To paint the old subject in a new way seems to be the only solution of the problem. We are apt to think that we must do something absolutely original in order to attract attention, but the old themes are still the best vehicles to achieve success. In still life the fish, the brass or copper ware, the bunch of grapes, and jar with flowers still reign supreme. I have often wondered at this awkwardness of treatment. The material would lend itself to



such beautiful arrangements. But I have known several still life painters of note who attempted more elaborate compositions and were not successful. It seems that the public patronizing this style of art is merely fond of detail and does not care for anything else.

Thus everything has its reason and can be explained in one way or another. It is a knowledge worth while acquiring for everybody who is in the picture making business. It applies to the amateur photographer as well as the art student. The amateur frequently lacks concentration of purpose. He ventures forth on pictorial expeditions without having made up his mind as to what he is going to take, and returns with much that is unprofitable and useless. He leaves too much to chance and overlooks the fact that a little bit of forethought as to the

choice of subject would help him over many difficulties.

The selection of the subject is half the battle won, and the more care and study a person devotes to it, the better he or she will fare. In the scope of my article I could only make a few suggestions, and it is really all that can be done. Aspirants to the art of picture making have to think out these days for themselves. Yet it cannot be repeated often enough that every picture of any pretension whatsoever, should have a broad human interest. The more popular the subject is the better it will be liked. Make it as artistic or commercial as you choose, or as the circumstances demand, but let it have some broad human interest. Only then it will appeal to the public, and that is after all we strive for, unless we are Secessionists, and only work for our own gratification.



LANDSCAPE

Charles H. Davis

## THE SINGLE ACHROMATIC LENS.

BY L. R. GWYER.



ANY professional photographer and almost every amateur who has passed the fixed focus camera stage, will scoff at the idea of going back to the old single achromatic lens and it would seem almost impossible to believe that at least one photographic artist, whose portraits are the cause of envy and admiration at every salon, still uses the single achromatic for a good deal of his portrait work; not because he does not own high grade portrait lenses, for he is the lucky possessor of a large and choice collection, but because he thinks that the achromatic, if used in the right way, will give more artistic diffusion than any other lens made.

According to the photographic encyclopedia "A single achromatic is the simplest and cheapest form of photographic lens, in which color diffusion has been avoided by the union of two lenses cemented together, one of crown glass and the other of flint glass, if not sufficiently diaphragmed will cause aberration."

The last line tells the secret. Take away the diaphragm and you get aberration or its equivalent, diffusion. Webster says that aberration means a wandering from the right, but photographic ideas have changed, since Webster's time, so we are willing to wander from the hard, sharp portrait of the past and accept, with a feeling of gratefulness, the soft, pleasing, art portrait of the present.

When one of the largest prizes ever offered in a photographic contest was won with an enlargement from a two dollar Brownie film, it plainly showed

that the secret of art is not all contained in high priced lenses, but as we are not all great artists, we need all the mechanical assistance that we can find, to produce artistic photographs, so when our bank account will not permit of our investing in a high priced portrait lens, with a diffusing attachment, the only thing that we can do is to use the best lens that we can afford and it is my honest belief that the single achromatic can be made into a fairly rapid portrait lens, capable of giving wonderfully fine results and as I said before, one photographer uses this lens in preference to any other and gets results.

A few words, with regard to the achromatic lens that I am using, may help others who wish to try one themselves.

The first one that I had was a  $6\frac{1}{2} \times 8\frac{1}{2}$  with a focal length of 10 inch. The lens part itself had a diameter of an inch and a half, but was mounted with a diaphragm capable of giving an opening of only three-quarters of an inch or in other words, a speed of F13.3 I took out the entire diaphragm and had a lens, with a speed of F6.6, capable of covering a  $4 \times 5$  plate, with lots of diffusion around the edges and just enough in the center for good portrait work.

The next one was an  $8 \times 10$  with a focal length of 15 inches and a lens two inches in diameter, giving after being de-diaphragmed, a lens working at a speed of F7.5 with the same properties as number one, but capable of covering a  $5 \times 7$  plate.

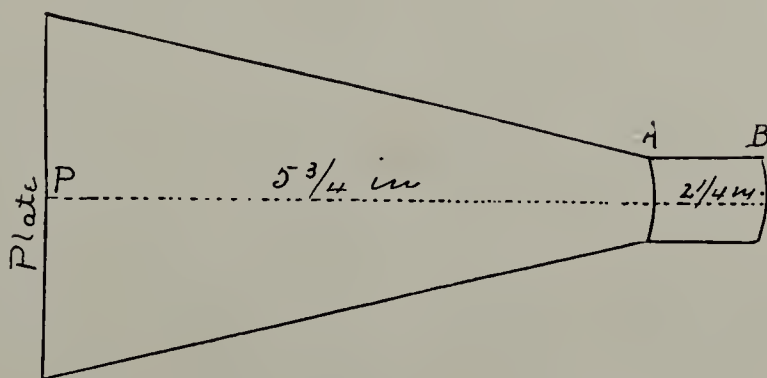
Wishing a lens of greater speed and yet having the same properties as either of them, I took them both to an optician and

had them mounted together; the two inch lens in front and the one and a half inch lens in back, with an iris diaphragm capable of giving a two inch opening, between. Mounting these lenses, in combination, of course produced the same results as combining the two combinations, of a symmetrical lens and shortened the focal length to about 7 inches. Trying to figure the speed of this lens, has affected me in about the same way as "How old was Ann?" and by the accompanying diagram you can see the problem. The point of focus falls some where between the two combinations A and B but just what the F value is I will leave for you to figure out and I am sure that the editor will give a red apple, for the first correct answer. At any rate it gives a lens that will cover a 5 x 7 plate at F4 or 5, or that can be used, by

stopping down, as a wide angle lens on any size plates, up to 8 x 10. Each combination can be used singly, as described before or if stopped down can be used on the size plates that they were originally intended for.

The total cost of this lens was as follows: The  $6\frac{1}{2} \times 8\frac{1}{2}$  was given to me by a professional friend, who said that it was a relic of old days and of no use to him. The 8 x 10 came from a second-hand camera store and cost me 50 cents. Cost of iris diaphragm and mounting in combination \$3.00. Total, \$3.50.

You have all seen and admired those portraits, where the far side of the face was just enough diffused to give the idea of distance. You can get that with this lens and it will do everything else that I have claimed for it. Can you beat it?



A.  $1\frac{1}{2}$  inch lens  
B. 2 inch lens

Distance, from P. to A.  $5\frac{3}{4}$  inches  
Distance from A. to B.  $2\frac{1}{4}$  inches



## USE OF ORTHOCHROMATIC PLATES.

BY CHARLES F. RICE.



IN order to understand why orthochromatic plates should be used instead of the ordinary kind for certain work, and why in some other cases the ortho plate has no advantage over the ordinary plate, it is necessary first to define wherein the two varieties differ.

All plates, ortho or otherwise, are very sensitive to blue and violet. In fact these are practically the only colors to which ordinary plates are sensitive, and to such plates all nature looks as it does to the eye when viewed through blue glass.

This explains the advice frequently given to those who would photograph landscapes, to take with them a piece of *blue* glass through which to look at the scene and judge of its photographic possibilities. It explains, too, why red, orange, yellow, and green photograph so unnaturally dark—green somewhat lighter than the other colors, because it has in its composition a proportion of blue—and why all blue photographs as so much white, or at least a great deal lighter than it looks to the eye.

Ortho plates on the other hand, are somewhat sensitive to yellow, and consequently also sensitive to yellow-greens, orange-yellows, and every slightly sensitive to orange-reds.

Even so, the ortho plate's blue-sensitiveness is so very great in comparison with its sensitiveness to other colors, that to gain the full advantage of its peculiar properties it is necessary to use with it a color screen or filter, which is a piece of yellow glass slipped over the lens. The office of the filter is to strain out or

hold back a part of the blue rays and thus give the yellow a chance to impress itself on the sensitive plate. The filter necessitates an increase in exposure of from five to twenty times (or even more) depending on its depth of color.

Without the filter, ortho plates and the other kind work very much the same as far as the rendering of color values is concerned. And thus the claim is made that ortho plates may be used in all cases where the ordinary kind may. This statement is true in a measure, but there are certain occasions, as we shall see, where the ordinary or "color-blind" plates have advantages—not because they *are* color-blind, but on account of other properties.

It is not practical to use the ray filter with ordinary plates, unless it be for some particular and extraordinary purpose, such as the photographing of a blue and white design or to obtain a cloud negative. Even in such cases the ortho plate would do the work much better, and very, very much quicker.

We now see the main difference between orthochromatic plates and ordinary plates and also why the use of the former with ray filter may be regarded as essential whenever it is necessary to record color values correctly, or even with approximate correctness.

Another point of difference is this—ortho plates are inclined to give a steeper gradation than ordinary plates; that is, a harsher, more contrasty result. This is true of ortho plates when used without a filter, but it is particularly noticeable when a filter is used. Nothing could be quite so hard and harsh as an under-exposed ortho plate, used with a filter. Over-exposure through the filter is

equally unsatisfactory, although without any filter an ortho plate seems to take care of over-exposure rather better than the ordinary kind. Under-exposure is the one thing that orthochromatic plates will not stand.

Wherever an ample exposure may be given, the ortho plate will yield without the screen as good results as the other kind—sometimes better. With the screen or filter and an ortho plate the resulting picture is nine times out of ten immeasurably superior to that taken on an ordinary plate.

The higher general sensitiveness possessed by any color-sensitive plate—that is, its listed speed, used without a ray filter—the less orthochromatic will be the effect produced by that plate without a filter. Some of the slower orthos give fairly decent color values without any filter—much better than any ordinary plate. An example of this is furnished by the Cramer Isochromatic plates, which come in three speeds—instantaneous, medium, and slow. (“Iso-chromatic” and “Ortho-chromatic” mean the same thing.) Without any ray filter the instantaneous iso gives practically no better color effect than an ordinary plate, the medium is a little slower and gives a little better color values, while the slow iso is eight times slower than the instantaneous and render colors very much better without the filter than either instantaneous or medium. However, the instantaneous iso used with a filter which makes it equal in speed to the slow iso—that is, one which necessitates an exposure-increase of eight times—gives a much better orthochromatic effect even than the slow iso does without a filter. And strange as it may seem, all three—the instantaneous, medium, and slow—work at practically the same speed through the filter, and so used give practically identical results. The “slow” iso

may be said to give as good color effect as is possible without any filter. In order to increase its speed it is necessary to increase its blue-sensitiveness, and the result is the “medium” iso. Increase the blue-sensitiveness still further and you have the “instantaneous.”

The Seed Landscape Ortho, the Standard Ortho, the Cramer Instantaneous Iso and various other brands of fast color-sensitive plates on the market all give very similar results. A ray filter that is suitable for one is just about as suitable for any others, in the writer’s opinion, notwithstanding that much has been said about the advisability of having the filter adjusted to the plate.

Eastman film seems to be in a class by itself—midway between the ordinary plate and the ortho. The gradation it gives is more like the ordinary plate than the ortho—that is, film does not seem inclined to the harshness characteristic of the ortho plate. But on the other hand, while film is somewhat orthochromatic, and may be used to advantage with a pale yellow ray filter, it does not even then give color values as well as the ortho plate; and the filter will necessitate a greater increase of exposure with film than it does with ortho plates.

The landscape photographer should always load his holders with color-sensitive plates, because in the majority of his pictures the ray filter may be used with advantage, and where it is not necessary the ortho plate suits his purpose as well as any other kind.

In the usual run of interior views the advantage of using ortho plates is doubtful, because as a rule it is not feasible to use the filter in such cases on account of the increase in exposure which it necessitates. Moreover, it is always desirable to have subdued contrasts in negatives of interiors.

Wherever the exposure is likely to be



cut short—and this includes all high speed work and most portraiture—the ortho is not so suitable as the ordinary plate, “The quicker the better” is the rule here. This precludes any general use of the ray filter, and under-exposure is an ever-present contingency. As we said before, *under-exposure is the one thing that ortho plates will not stand.*

Fast ortho plates there are, to be sure—those that are listed as fast as any ordinary plates. In practice, however, the ortho will fall down completely when put to severe test in the matter of short exposure, where a passable result may be obtained on an ordinary plate of nominally the same speed.

Having previously compared film with plates as to orthochromatic qualities, it is only fair to state here that, in the writer’s opinion, film will stand under-

exposure or forced development, or both, better than ortho plates but not so well as ordinary plates. In all attributes film seems to stand between the two kinds of plates.

The moral and conclusion of all this seems to be that orthochromatic plates and ordinary plates each have their peculiar virtues that indicates the use of one or the other for special purposes, but that both are suitable for the general run of photographic work. Without a ray filter, the ortho plate will do the same work as the ordinary plate—no better, no worse—except where extreme speed is required, and then the ordinary plate is better. No advantage is gained by the use of ortho plates unless a filter is also used. Correct color values are impossible with ordinary plates and can only be obtained by the use of ortho plates *with a filter.*



GIRL WITH ZITHER

Edwin H. Blashfield



# Editorial Notes

**B**EFORE commencing your busy photographic season it may be well to consider the method you have employed in previous seasons for securing results, and to see if you cannot simplify or improve upon them, so as to insure a higher percentage of results worth having. There are so many little things one may do wrong, or partially so, that of themselves do not amount to much, but total up quite perceptibly against the attainment of first class pictures. Largely perhaps because there can be no definite rules given for exposure, more amateurs err on this point than any other. It is true that the remarkable latitude of the present day plates and film permit quite a wide variance from the absolutely correct exposure, and still afford negatives of good printing quality. However, if you permit yourself to rely too much on this latitude, the average quality of your negatives must suffer. A certain amount of improvement can of course be made by the after-processes of intensification and reduction, or by juggling during printing, but if your exposure does not closely approximate the correct, you cannot hope to reproduce all the subtle qualities in the print that you run on the ground glass or finder.

A little experimenting in exposure at the beginning of the season will not prove time wasted later on. There are a number of mechanical aids, exposure meters, tables, etc., that will prove of value to you in your first experiments, but we would advise your learning to rely on your own judgment as much as possible.

The process of development is also one that needs close looking after, and in this connection, we most heartily recommend the process of tank development. It is true that if you employ this method of development, the building up of the negative cannot be watched, yet you should be willing to deny yourself the pleasures of witnessing this interesting phenomenon, in view of the many other most decided advantages of the tank method.

In the first place you are free from the discomforts of the stuffy darkroom in hot weather, and you avoid entirely the accidents of light, fog, and scratches, and finally you are surer of a much higher average of good results if you follow the simple instructions regarding time and temperature.

Reading over the most comprehensive instructions furnished by the manufacturers of photographic apparatus and material, it seems almost impossible for the amateur to go wrong, but that he *does* go wrong, will be evidenced by a glance at your own negatives and prints. In a good many instances, the failures can be attributed to lack of experience, but your later failures can be attributed to but one thing—*carelessness*. Let us each one resolve that this summer we will not make an exposure till we are sure everything is right, and follow out each process in the same manner. Let this apply to the artistic as well as the mechanical side; don't waste good plates and paper on subjects not worth photographing; don't get so many "near pictures," the kind that just missed being good by a carelessly selected view point, or unfavorable time of day.

## MONTHLY FOREIGN DIGEST.

TRANSLATED BY HENRY F. RAESS.

## Solubility of Silver in "Hypo" Solution, by Florence.

It is a well known fact that a negative after fixing is much less dense than before. Sometimes this difference is considerable. The cause of this is the removal of the unreduced silver bromide, but some of this reduction in density may also be due to the dissolving of the image proper, which we usually look upon as being metallic silver. If we expose a plate, cut it in two, develop the two halves to the same density one with hydroquinone and the other with metol, we will find a difference in density between the two halves after fixing. Apparently the fixing bath dissolved some of the metallic silver, but to prove this is no simple matter. The fact that the density varies according to the developer used leads us to the conclusion that the substance of the image may not be of uniform composition. What the nature of the product is which is soluble in "hypo" is difficult to prove. For the present we will see if the metallic silver obtained in photographic procedure is soluble in "hypo." This question like many others is best answered by methodical experiments. Haddon and Grundy prepared some metallic silver by reducing the bromide with pyro. This was brought in contact with a 20% "hypo" solution for fifteen minutes, only a slight amount of silver was dissolved. An evenly exposed plate was then developed, fixed, washed and dried. The plate was then cut in two, one-half was placed in clean water for twenty-one hours, the other was placed for the same length of time in a 20% "hypo" solution. After washing and drying, the two halves were

photo-chemically compared, it was found that the "hypo" treated plate transmitted eleven times more light than the other. This proved that the "hypo" had attacked the image. The same investigators found that the presence of air increased the solubility of the image in "hypo." Their theory is that silver sulphide is formed, which, in the presence of air, is oxidized to sulphate, the latter dissolving in the fixing bath. To prove that air plays an important role, a test was made with two pieces of bromide paper. One was placed in "hypo," and carefully protected from the air. On long keeping no change was visible. The other was placed in a "hypo" solution through which a current of air was passed, and the image then disappeared in twenty hours. The presence of sulphite does not retard this action of the air. The following experiments were made with silver bromide paper, using 10% and 20% "hypo" solutions. Pictures developed with hydroquinone faded in four hours and after thirty hours had almost disappeared. With ferrous oxalate, the fading began after one and a half hours, and in two hours had progressed very far. The image developed with amidol began to fade in one hour, and was gone in four. Metol gave similar results. This seems to prove that the product of development upon which we have always looked as being metallic silver, may be of a variable nature. The rapid developers seem to yield a less stable product than those of slower action. The question also arises does the "hypo" suffer a change which would cause it to dissolve silver when air is passed through it, or is it necessary to



have silver present. Two experiments were made on this point. Air was passed for twenty hours through a concentrated "hypo" solution placed in a tube. A piece of bromide paper with a sensitometer scale was then introduced. The tube was then closed by melting the end. After nine days only one degree of the scale had been dissolved. A similar test was then made with another tube, but through this air was slowly led. After four hours, three degrees on the scale had been dissolved, after eight hours five degrees, and at the end of twenty hours, all of the degrees had disappeared. Metallic silver must undoubtedly act on "hypo," to cause the latter to dissolve it. The air alone could only cause an oxidation of the "hypo." The changes in a watery solution of "hypo" always bring about a precipitation of sulphur, and the formation of sulphite, the latter possessing only a slight solvent action on silver haloids. This then leaves us only the above theory of Had-don and Grundy. — *Photographische Chronik*, No. 1, Dec., '07.

**Ammonium Persulphate Solution, by Namias and Baschieri.**

Some years ago we reported in an article on the relatively good keeping qualities of simple ammonium persulphate solution. Recently we took the matter up again on account of a new formula published by Mr. Bennet. For this new formula is claimed a better action, and longer keeping qualities. This formula consists of a mixture of ammonium persulphate, sodium sulphite, and sulphuric acid. Incidentally we wish to call attention to the variation in quality of several samples of ammonium persulphate examined by us. The analyses were carried out by the iodometric method. One German sample contained 53.2% another by Lumière and in our

possession for five years, 46.8%, and a third made by Kahlbaum 96.8%, the difference consists largely of sulphates. On making up Bennet's solution sulphur dioxide (SO<sub>2</sub>) is evolved and remains for some time in the solution. But after three or four days the odour of sulphur dioxide was no longer perceptible as it is oxidized by the persulphate, which was proven by a loss of persulphate. On making comparative tests with Bennet's formula and plain ammonium persulphate solutions, we found practically no difference in regard to their action on negatives. In keeping qualities the plain solutions are preferable to Bennet's. A solution of ammonium persulphate in distilled water, either neutral or acid, preserved in the dark will keep at least two months.

—*Atelier des Photographes*, Vol. 14, No. 12, Dec., '07.

**Green Ozotype Prints.**

Paper is first sized with a two per cent. gelatine solution and when dry brushed with a tuft of cotton wet with the following ozotype solution:

English.		Metric.
3½ ozs.	Water	100 c.c.
45 grains	Potassium bichromate	3.0
75 grains	Manganese sulphate	5.0

The paper is then dried in the dark. On printing the image appears quite rapidly and has a brown color. Printing is continued until all details are visible and the image seems overprinted. The print is then washed for two or three minutes or until the whites are clean. The superfluous liquid is removed by means of blotting or filter paper and the print laid on a glass plate and a small quantity of the following solution poured on and rubbed over with the fingers:

1⅔ ozs.	Water	50 c.c.
75 grains	Pyrocatechin	5.0



The picture appears in a few seconds with a brilliant green color. The print should then be washed for five minutes and rapidly dried. If the picture after drying is not sufficiently bright, it may be covered with varnish. The pictures are quite permanent.—*Photographische Chronik*, No. 7, Jan., '08.

#### Tank Development and Yellow Fog.

According to the investigations of Lumière, L. Cramer, Liesegang and others, yellow fog is caused only when there is a simultaneous reduction and dissolving of silver bromide. Only traces of silver bromide, iodide and chloride are dissolved in the developer, and only long continued development will cause a yellow fog in the developer if the plates were under-exposed. A strong developer containing much alkali and sulphite will easily cause yellow fog if the temperature is high. Developers which have a tendency to cause yellow fog when used in tank work should be kept under 15 deg. C. (60 deg. F.) Traces of "hypo" 0.03 to 0.04% are sufficient to cause this trouble. While larger quantities (over 0.3%) will not. Occasionally this trouble will occur in the fixing bath if it is neutral or alkaline and the plate is not well rinsed before fixing, because the conditions are then suitable for the formation of a yellow fog. Therefore use an acid fixing bath. To remove the yellow fog, Lumière advises placing the plate for five minutes in potassium permanganate solution 1-1000, rinse and place in a solution of potassium metabisulphite 1-10, and wash again. The last solution will remove the brown color. The density of the negative will not be changed under these

conditions, as permanganate attacks the image only in an acid solution.

—*Photographische Chronik*, No. 92, Nov., '06.

#### Night Photography, by Dr. L. L. Kleintjes.

Photographs taken at night possess a peculiar charm. I am not referring to flash lights nor lamp light, but pictures made by the lights which one finds in the streets and alleys. Photographs so made are much more natural and the results repay the effort. The first trials should be made on street corners lit by arc or incandescent gaslights and where the ground is wet from rain or covered with snow. To obtain the proper dark sky effect, clear moonless nights should be chosen where possible. Clouds over large cities reflect the light caused by the numerous lights in the streets. The exposure is quite long with a lens working at F8, snow covered ground, and an arc light the time is at least ten minutes. All lenses are not suitable, those possessing a strong flare or ghost will yield only indifferent results. (Rapid single lenses would seem best for this kind of work. *Translator*.) It is further necessary to see that the lenses are clean and not covered with a film of moisture, the latter easily happens, if the hand comes near the glass on cold nights. Orthochromatic plates are not absolutely necessary, but help in reducing the tendency to halation. Where the light is very yellow as in the case of electric incandescent or petroleum, color sensitive plates are an advantage as they reduce the time of exposure. Development presents no particular difficulties. Over exposure need not be feared.

—*Photographische Rundschau*, Vol. 20, No. 14, 1906.

## THE FIXING BATH.

BY F. J. MORTIMER.

**T**HE fixing bath is undoubtedly the easiest and cheapest of all photographic solutions, and although by no means the least important, is the one which as a rule receives the least attention from photographers generally.

It is always as well to obtain a good quality hypo, for the cheaper kinds are not only dirty, but in such large crystals that they are inconvenient. It is certainly not necessary to weigh hypo out at home. There is the chance of spilling it about the place, and the risk of it becoming dirt, or matter in the wrong place. Hyposulphite of soda can be obtained in small pea crystals packed in 1 lb. boxes, the contents of which can be at once dissolved and form a stock solution. The most convenient bottles are the "Winchester quarts," which can be obtained from any chemist for a few pence, and which hold half a gallon. A pound of hypo dissolved in sufficient water to fill one of these will make a fixing bath about the right strength for fixing negatives.

## MAKING THE SOLUTION.

It should not be forgotten that when hypo is dissolved there is a big drop in temperature, and further, that a solution of hypo is always heavier than plain water; therefore to put the hypo into the bottle and fill up with water simply means that the salt will be a very long time in dissolving, and will be even then too cold for use, for in certain cases a very cold fixing bath means not only slow fixing, but stains. It is far simpler to either boil about a quart of water in

a clean enameled saucepan, then add the hypo, and as soon as it has dissolved, which it will do very quickly, to add cold water till the solution is cool enough to bottle, and then fill up the same with cold water. Another and equally simple method is to use a large jug and pour successive quantities of hot water on the hypo, or else hang the hypo in a bag of linen or calico and allow to dissolve, pouring off the solution and using more water as the former gets strong. This filters out any dirt, but with the small crystals this is not actually required.

## PLAIN AND ACID FIXING BATHS.

A plain fixing bath is perfectly satisfactory for all printing-out papers, but should never be used for any plate or paper which is developed. For these an acid fixing bath should be used. The special virtue in the acid bath is that it at once arrests development by neutralizing the alkali, and further, it reduces the possibility of staining by oxidation of traces of the developer carried over into the bath.

Superior even to the ordinary acid fixing bath is that containing an alum, and preferably chrome alum, for, as pointed out by MM. Lumière, this hardens gelatine so much that very hot water can be subsequently used to eliminate the hypo. Some little care is, of course, required in the mixing of these acid fixing baths, because the addition of an acid or alum to hypo in solution causes immediate decomposition with precipitation of sulphur, which may even be deposited on the image film. The following formula may be taken as typical and satisfactory:



## ACID FIXING BATH.

Sodium sulphite .....	¼ lb.
Citric acid .....	1 oz.
Hypo .....	1 lb.
Water to .....	80 ozs.

## CHROME ALUM BATH.

Sodium sulphite.....	2 ozs.
Sulphuric acid (concentrated) ...	¼ oz.
Chrome alum .....	½ oz.
Hypo .....	1 lb.
Water to .....	80 ozs.

The proper way to mix these is to dissolve the sulphite in about a pint of the water, add the acid, and in the latter bath also the chrome alum, and only when dissolved add to the hypo, which should be dissolved in the remainder of the water. When mixed in this way, the solution will be quite clear and free from any precipitate.

It has been stated above that these baths prevent stains on the negative and arrest development by neutralizing the alkali carried over by the prints or plates, but as a matter of fact there should be very little developer carried into the fixing bath if the plates or prints are washed, or rather, well rinsed back and front in running water, or at least dipped two or three times into clean water. This may seem quite an unnecessary piece of advice, but the trouble entailed is so little, and the extra life of the fixing bath and added immunity from stains so pronounced, that we strongly advise it in every case.

## FALSE ECONOMY.

A fixing bath, whether acid or neutral, must necessarily in time become exhausted as regards its fixative powers, because it is essential that a perfectly soluble compound of hypo and silver be formed, otherwise the negative will darken or turn yellow and fade afterwards. It is always advisable, therefore, to be fairly liberal with the fixing bath, and not be "penny wise and pound foolish."

Without entering too minutely into the necessary chemical calculations, one may assume with a fair amount of safety that an ounce of hypo will thoroughly fix a dozen quarter-plates or prints. This would naturally be 5 fluid ozs. of the above baths.

## STAINS.

It is probably unnecessary to lay stress on the necessity of complete immersion of the film; still it will do no harm to point out that any portion of a film, whether negative or positive, which is immersed and then only partially covered with the fixing solution, will be invariably stained, and this stain is not always due to continued oxidation of traces of the developer, but to decomposition of the silver hyposulphites by the contact of the air and the formation of silver sulphide. Another danger in this partial exposure of the film is that the image may be there reduced, because hypo in contact with the air is a fairly energetic reducer.

Perfect fixation is a *sine quâ non*, and the usual directions given by all plate makers to the effect that the plates should be left in the fixing bath for some minutes after the plate appears cleared, should invariably be followed. This ensures a more complete solution of the silver salts and a much more rapid elimination of the same in the subsequent washing.

## FIXING BATH FOR P.O.P. PRINTS.

We have dealt so far almost entirely with the fixing of developed plates and papers, but when we come to deal with printed-out silver images, it is advisable, though not essential, to use a bath not quite so strong, and it is absolutely imperative to use a neutral or alkaline fixing bath, the latter being preferable. Working on precisely the lines we have already laid down as to using up a pound



packet of hypo, the following would be a convenient method of making the fixing bath for P.O.P. Prints:

Hypo ..... 1 lb.  
 Liq. ammonia fort..... ½ oz.  
 Water to ..... 80 ozs.

For use mix 1 oz. of water with 3 ozs. of the above. This avoids the necessity of weighing the hypo and measuring the water, if the large Winchester quart bottles are used as we have already suggested. Instead of the ammonia an ounce of carbonate of soda may be used instead. The purpose of these alkalies is to neutralize any possible trace of acidity from the toning bath or from the emulsion itself, which would inevitably cause decomposition of the hypo and consequently sulphur toning, which would mean a fugitive print. It must not be

overlooked that the image in a printed-out silver print is far more readily attacked both by direct chemicals and atmospheric action than a developed image, though both are supposed to be metallic silver; but in the former case it is assumed that the silver is in a much finer state of division.

The precautions to be taken as advised above for developed images apply with equal if not greater force to printed-out images. With prints it is not possible from the nature of the support to see when the print is fixed; it is all the more necessary, therefore, to work by time, that is to leave the prints in the bath for at least ten minutes, and fifteen will not hurt if they are thoroughly immersed, and also to take care that the temperature of the bath is not too low.

—*Photographic News.*

## THE FLOWER STUDIO.

BY LIONEL HAWEIS.



F there were no flowers!

\* \* \*

To attempt to imagine such an appalling state of affairs it would first be necessary at one fell swoop to obliterate from conception practically every form of historic decoration. For is there a single example of human ingenuity—of construction or design—into which the mind of man has not at some time or other introduced, and generally, as a matter of course, introduces, the semblance or inspiration, however, bastardized, of a flower, leaf, or plant of some kind? Scarcely. All art is imbued with the flower motif; all religion is instinct with it. Philosophy gives us the “language of flowers”; even philology sanctions “flowers of speech”; and endless ex-

amples could be quoted to prove how intimately associated with flowers is the human mind and conscience.

Neither is this flower-motif associated with anything but moral excellence. However vile of execution, the intention—however regardless of taste—is always in the best and most pleasing interests of humanity. Look around, and, if you have never seen it before, it will at once be borne in upon you how complex, how popular, how indispensably universal in form, treatment, and color, good and bad, are the decorative uses to which the general characteristics of flowers are applied. Flowers on plates, tiles, clocks, walls, boots, blouses, buttons, bottles, machinery, buildings, parasols, advertisements—floral decoration is on everything and everywhere. Why?

The reason is, doubtless, to be found in the fact of their universal beauty and simplicity. For flowers are for the most part simple things—things elemental still, the most artificial of them, *pace* the green carnation, the blue rose when it comes, and the rest of them; emblems of pleasure and rejoicing, of sadness and tragedy, but essentially of gentle and demure regard for circumstances, however incongruously and unhappily placed. Now and then there may even be discerned among them a certain quiet humor—define it how you will; sometimes a witty impertinence of petal, an eccentric flourish of tendril; a suggestion in rare individuals of magic and evil intent; but for me, at least from the point of view I approach them, there is not a solitary instance of caricature! Imitation there may be, caricature there is not. If occasionally a thistle commands an expletive, to the nettled is quite another matter; but is there one single vegetable of them all inspires a retort? If so, I do not know the flower; nor have I heard the retort—courteous, of course. Also, it would seem that, incapable as they are of true mimicry, flowers are equally immune to ridicule; for to effect a caricature, intentionally or otherwise, is to have the laugh against you—wallpaper manufacturers and some others excepted.

So that at last I come to my long-anticipated and not, perhaps, very original conclusion, that flowers, as a class, are altogether delightful folk, serious, humorous, (patient—just as you like to take them; but, after all and before all, indispensable adjuncts of human happiness and enjoyment, of human emotions in general, and especially worthy the best efforts and intuitions of the sympathetic photographer.

To be practical, I exposed and wasted many a plate before I felt I had captured anything of the spirit of my “crowned

clients.” But the fact that at long length struck me, perhaps whimsically, but very forcibly too, was that which I have already endeavored to point, namely, that never once have I succeeded in blundering upon a photographic freak, much less a caricature, of a flower. Of course, in the matter of human faces, I, with others, have had my successes—caricatures as humorous as they were unintentional. One at least should have cost me a legacy. That it did not was because the dear old lady saw no humor in my picture of her. She was not even annoyed; she called it “a capital likeness, considering.” But I destroyed the negative and, I believe, burnt the print.

And likewise I have had to destroy many and many a negative of my floral and leafage friends; but not because they were in any way humorous. That I should never have produced a caricature of a flower should argue either that I have no conception of humor—this plea I deprecate on the score of present company—or else that there is nothing in a flower to caricature—but this I deny. The personality of flowers is distinct and varied enough for all who love and strive to understand them; though it may well be, and it probably is so, that the expression on their pretty faces is too intangible, too remote from human standards, too fleeting, and, above all, too simple to be engaged in the toils of human laughter. Do I want to mimic my lady Rose of her flauntingness, poke fun at Miss Violet for her absurd reticence, pass a gibe at Master Foxglove for the vanity and conceit of his truculent bearing? No; I am satisfied that I have not done so, and I would not try, and—I will have this wallpaper off next week.

Knowing little of lighting, my first attempts at flower portraiture were depressing and expensive. After a melancholy period of chemical reticences and



abysmal fogs, I began to inquire whether I was not indeed, on a wrong tack. Unhappily, the steps which led to this ample conversion took me in the first instance, perhaps not unnaturally, towards the conservatory. It was therefore quite in the nature of things that the abundance proved confusing, the light all-overish; moreover, the tiled floor was slippery. This last defect I overcame by means of corks on the tripod legs; the other two were apparently uncontrollable. The gardener also objected. My own bedroom being forbidden territory, I relieved myself of his and others' more than espionage by a secret compact with our maid, because—I hasten to add—her attic had a north light. However, the reason was deemed insufficient, and I threw up the game with a shrug.

Years later, in lodgings, it was different. So long as I cleared up afterwards, nothing mattered—not even the clearing up. Beside the window I rigged up a most effective and permanent flower-studio, and, if it will interest you, this is how I did it.

The room I hired had but one window, set almost in the corner of it, by a builder, whose conscience was actuated solely by a consideration of exterior appearances. In order fully to appreciate the beautiful simplicity of his mental attitude, you must have seen the outside of that house. However, it is down now, and the flat-fiend wreaks his will of the site. Parallel with the window, and lengthwise, I placed an ordinary deal table, the narrow end up against the partition wall, so that the center of the table measured about four feet from my only source of light. Then I tacked a white uncreased sheet of paper to the partition wall two feet above table level, to hang against the wall down on to and along the table in the direction of my

quarter-plate camera, perched, if you will, on some books. By this simple means I accomplished a capital continuation background.

My attention was next directed to the window, which I curtained first with white muslin from top to bottom, and over that with dark blue sateen in two sections—one curtain for top light, and one for side light—to slide with small rings along wires. The light I then found was entirely under control.

The rest was merely a matter of trial, and a short experience very soon enabled me, as it will enable others, if they care to try, to gauge the light to a nicety. For instance: the white muslin blind never being disturbed, the lower dark curtain, half withdrawn, gave a fairly strong diffused side-light. Displacement of the top dark curtain rendered the light admitted thereby less strong and more diffused; and when the light admitted by the withdrawal of either of these dark curtains was tempered by small, intermediate screens of blue or pink muslin, as the subject might suggest, or sometimes by an opaque screen (each of these little contrivances were about eighteen inches square), it became comparatively easy to illuminate quite small individual portions of a blossom, and even to choose a petal or a leaf.

Gradually several other expedients suggested themselves; one of which, I may mention, was a long card, four feet by two feet, scored across the center so as to bend at right angles to form a "ceiling" and one "wall," the said "wall" having a two-inch hole cut in it three inches or so from the "ceiling," for the purpose of admitting a pencil of light to settle on, say, the tip-top blossom of all. The "ceiling" on the shadow side, of course, needed support, and this I effected by means of two two-foot sticks



fixed vertically to the card by means of two tacks. Primitive, but effective. I recommend a trial.

The background was also found to be very useful if, when made of Bristol boards, it was curved concave or convex behind the floral sitter, thereby creating a natural shadow either top or bottom, or at the sides, or both—that is, from corner to corner. This was a first-class graduated ground, giving great depth and softness.

If I have not adorned the tale, I have now said enough to point the moral, and the moral is this. I doubt if there is a simpler or cheaper or more effective method of learning the principles of “lighting” than by a self-imposed course of flower portraiture. Of course, every-

thing is on the diminutive scale, including expenses, and this last is a great consideration to many enthusiastic, intelligent, but alas! often penurious workers.

For the rest, I find flower portraiture much more delightful than the miscellaneous reproduction of one's friends, many of whom are not beautiful at all, and some—indeed, my beautiful friends are few and far between. As for freaks, it may be that the improvements on my early methods have now placed me beyond the pale. Also flowers, unlike human faces, never—well, hardly ever—seem to need retouching.

Why is that, I wonder?

—*Amateur Photographer.*

## EXPOSURE WITH TELEPHOTO LENSES.

BY H. FOWLER.

**N**OW that the use of telephoto attachments is getting so very common, the photographer employing such an instrument for the first time finds himself pulled up short against the problem of the correct exposure with it. His most cherished ideas seem to be destroyed, and his most extended experience with lenses of the ordinary type, seems rendered useless. It is not actually so, as this article will show, but it certainly seems so at first. He has been accustomed to regard the focus of his lens as something as fixed as the laws of the Medes and Persians. For is it not written in letters of brass upon the lens mount itself, even unto the fourth place of decimals (in some cases)? Yet when he gets his telephoto lens, he finds that not only has he got to calculate the exposure, but he may even

have to calculate the very focus itself. Fortunately, the problem is by no means as bad as it looks.

Taking the question of exposure in its simplest form, we know that as far as the lens is concerned it is one of the quantity of light admitted into the camera and the size of the area over which it is spread. The quantity depends on the actual area of the stop itself, if we ignore a certain slight influence of the lens in front of the stop. As stops are circular, and as the areas of circles vary as the squares of their diameters, we may say that the size of the stop and, therefore, the amount of light it allows to pass varies, as the square of the diameter of the opening. In other words, a stop two inches in diameter lets four times as much light into the camera as a stop one inch diameter, because the square of 2 is 4; that is to

say, four times as much. Consequently, if the light admitted by those two stops were spread over the same area of plate, that is to say, if the camera extension remained the same, or, putting it another way, if they were both used with the same lens, the smaller stop would require four times the exposure called for by the other.

Turning to the question of camera extension, we know that this is governed by the focus of the lens we are using; but we also know that this in its turn governs the size of the image. Not, be it remembered, the size of the plate that may be covered—that depends on another property of the lens—but the size of each object in the image. For instance, if when the camera is extended four inches the image of a certain object is a couple of inches long, and without shifting the camera we substitute a lens which is of so much longer focus that the extension required is eight inches—that is, double the former case—we shall find that the length of that image is doubled—it is now four inches long. Supposing that image is in the first case a square one, two inches each way, it will now be a square one four inches each way; that is to say, instead of an area of  $2 \times 2 = 4$  square inches, it has an area of  $4 \times 4 = 16$  square inches. It is not twice the area, then, but four times; while its linear dimensions have been multiplied by 2, its area has been multiplied by  $2^2$ , or four. So that while linear dimensions increase in proportion to the extension of the camera, the areas increase in proportion to the square of the extension.

The light entering the lens from that object is, in the first case, spread over an area of four square inches, and in the second over an area of sixteen square inches; so that if the diameter of the opening of the stop (not the *f* number,

remember) remained the same in the two cases, the exposure when the extension was doubled would have to be increased fourfold.

All this may seem very simple, and no doubt it is very simple to those who know it; but as it must be clearly understood, if what follows is to be of any use, perhaps the reader who does not need to be reminded of it will overlook its recapitulation in the interests of weaker brethren.

In respect of the relationship between the exposure required on the one hand, and the diameter of the opening in the lens and the area over which the light that enters is spread on the other, the telephotographic lens is on all fours with other lenses. For example, if we are using an ordinary R.R. lens in the first case mentioned above, when we got an image of a square two inches each way, and if we attach to that R.R. lens a negative or telephoto attachment by which we increase the size of that square until it is four inches each way, still keeping the diameter of the stop in the R.R. lens the same, the exposure required will be four times as long. The telephoto lens has increased the area over which the light is spread from four square inches to sixteen square inches, so that the strength of the light in each part is one-fourth what it was, and to counter-balance that we must give four times the exposure.

One of the simplest methods of finding out the exposure required with a telephotographic lens is to ascertain, in the usual way, what the correct exposure would be with the stop that is being used in the positive or ordinary lens, and then to multiply that exposure by the magnification of the area over which the light is spread, that is to say by the square of the *linear* magnification. In all books and articles on telephotography, when



"magnification" is written, linear magnification is meant. That is to say, in the above-mentioned case, where the length of the object was increased from two inches to four, doubled, in fact, the "magnification" is said to be 2. The exposure, then, is increased by the square of 2, that is by 4. If any of my readers are not mathematically inclined enough to follow this, it will be sufficient if they remember that to find the exposure when the linear magnification is known, the original exposure is multiplied by the linear magnification, and the result is again multiplied by the linear magnification to get the exposure. Thus, if the telephoto lens increases a certain part of the image to three times its size, and the exposure for the subject without the telephoto attachment was half a second, the exposure with the attachment, if we do not touch the stop, becomes  $\frac{1}{2}$  multiplied by 3, equals  $1\frac{1}{2}$ ;  $1\frac{1}{2}$  multiplied by 3 equals  $4\frac{1}{2}$ . The exposure, then, is  $4\frac{1}{2}$  seconds.

Where then, lies the difference between the telephoto and the ordinary lens? The essential difference is in the camera extension required. To take the imaginary case above mentioned, wherein an object's length was doubled, we saw that with an ordinary lens, the camera extension required was doubled to bring such an increase about. With a telephoto lens this is not necessary; we can enlarge the size of the image of objects without having to extend the camera in proportion to the enlargement. If, therefore, we were to try and estimate the enlargement by mere measurement of the extension we should go astray, but if we learn the actual degree of enlargement, either by measurement of the images on the ground glass, or by calculation, we can use that knowledge to calculate the exposure, by the rule already mentioned, which is put here

in italics for convenience of reference afterwards.

*When we add a telephoto attachment to our ordinary lens without altering the stop in that lens, the exposure is increased in proportion to the square of the linear magnification of the image.*

This is perhaps the simplest method of all, but it is not the only one. We may wish to know the true f number of the telephotographic lens, so that we can calculate the exposure directly, by means of the exposure meter, just as with any other lens. If, as is almost sure to be the case, the positive, or ordinary lens, has its stop values marked on it, we must not take these to be the f numbers when we have fitted a telephotographic attachment to it, or we shall be altogether wrong. But a very simple calculation will give it us, when we know the magnification. Here is the rule:

*The f number of a telephoto lens is the f number of the stop in the ordinary or positive lens employed, multiplied by the (linear) magnification.*

The foregoing all turns upon the measurement of the magnification, and although Mr. Ernest Marriage in his book "Elementary Telephotography" describes the measurement of the magnification as "wasting time and labor," it is at once so direct and so simple that a good many workers prefer to do it rather than to calculate the magnification. It is particularly to be recommended to those who only carry a telephoto attachment for occasional use, as it does away with all need for tables, etc., and for the recollection of elaborate rules. The simplest way is to select some part of the object, or the main subject of the telephotograph, and to put two dots of ink with a fountain pen on the shiny surface of the ground-glass where two well-defined points of such object fall, when the ordinary lens is sharply focused. Re-

moving the focusing cloth, we take a strip of paper and mark off on it the distance of the two dots, which may then, while still wet, be wiped off. The telephoto attachment is next put on, and when all is ready for exposure, the position of the same two points is again marked with ink dots and measured off on another strip of paper. There is no need for a foot rule or any such appliance; we can apply one strip to the other, and in that way find out with sufficient accuracy how many times one dimension is contained in the other, which gives us the magnification.

Instead of measuring the magnification directly, in the way just described, it may be calculated. To do this we must first know the focus of the negative lens or telephoto attachment. We must also know the distance from that lens to the focusing screen. The focus of the negative lens is usually marked on it, when it is bought. If not, we can get at it once for all by carrying out the method described in the previous paragraph as carefully as we possibly can, and then calculating from it.

We must measure the distance from the focusing screen to the brass mount which carries the telephoto lens, and then subtracting 1 from the magnification we divide the distance of the focusing screen from the lens by that amount. The result is the focus of the negative lens. For instance, we will suppose we find that the magnification is  $2\frac{3}{4}$  times, and the distance of the negative lens from the focusing screen is seven inches. Subtracting 1 from  $2\frac{3}{4}$  we get  $1\frac{3}{4}$ , and dividing 7 by  $1\frac{3}{4}$  we get 4; by which we learn that the focus of our negative lens is four inches. The operation is not one to be recommended, except as a rough if not ready way of getting at the focus, when we do not know it. It is much better only to buy a telephoto attachment

from a reliable maker who marks on it its focal length. If this cannot be done, then the measurement just described should be carried out several times on different subjects. The calculations should come out within twenty per cent. of each other, and then a mean should be taken, that is to say, the results of all the calculations should be added together and the total divided by the number of the results that were added. This gives us a more accurate measurement of the focus of the negative lens than any one of them by itself may be supposed to be, but even then it is only an approximation, because of measurement difficulties, which need not be further referred to.

However it may have been ascertained, the focus of the negative lens will give us the magnification at any time, *provided we know the distance the focusing screen is from the negative lens*. If the telephotographic lens is in a fixed mount, we can put a mark on the baseboard of the camera to correspond with the position of the back of the negative lens inside. Then, by measuring the distance of the ground glass behind this mark we get the required distance at once. If not, we must adopt the primitive plan of removing the focusing screen and measuring directly with a foot rule. It is easy to do this approximately, but it can only be done approximately. Strictly speaking, the measurement ought to be made to the surface of the glass of the back lens, but it is better to measure to the edge of its metal mount, as that is near enough, and removes any risk of scratching the glass. When the measurement has been made, the magnification is calculated thus:

*To find the magnification, divide the distance between the focusing screen and the negative lens by the focus of the negative lens, and add one to the result.*

It will be seen from this that the ex-



posure with a telephotographic lens only differs from the exposure with the ordinary lens, without the telephotographic attachment, by the extent the telephotographic lens magnifies the image. We must know the magnification, either by direct measurement, or by calculation, whichever is preferred. Knowing that, we ascertain the exposure that would be needed by the stop in the ordinary lens, and, multiplying that exposure by the magnification and the results by the magnification a second time, because in exposure we are dealing with areas, not with linear measurements, we get the exposure the telephotographic lens requires, *so far as that exposure depends on the lens.*

That last qualification is a very important one. Most telephotographic subjects are distant ones. When this is the case, the subject is seen through a certain amount of mist, or dust laden air, which prevents its shadows, as every photographer knows, from appearing as dark as they otherwise would do. We must, in such a case, be particularly careful not to over-expose, or we shall be unable to get sufficient contrast in the negative.

In other words, we must not forget that our subject is an "open view," as far as exposure is concerned, even if, in consequence of the use of a telephoto lens, it is actually anything but panoramic in character.

But all telephoto work is not of this sort. Sometimes the opposite is the case. We use an ordinary lens to get a general view of a building, and then, putting on a telephoto attachment, we take a picture of some inaccessible detail on a large scale. There is no question here of looking through a great depth of il-

luminated air. On the other hand, all the parts of the subject, which we relied on for high lights in the general view, are excluded in the telephoto picture, and greater importance is given to shadows. In fact, the highest lights in the telephoto picture may actually be part of the deeper shadows in the ordinary picture. In the general view, we may put up with a comparative absence of detail in them; we may even want such an absence; but in the telephoto picture the detail must be there in its full value.

In other words, in such a case, the relative exposure must be increased when the telephoto lens is used.

These qualifications may seem to complicate the subject, but they need not do so. Let us bear in mind that the governing factor is the telephoto lens itself, and the magnification of the image which its addition brings about. Remembering that, and ascertaining, in the way I have described, its influence on exposure, allowance for the other circumstances is simply a matter of ordinary common-sense, which, I doubt not, each of my readers can readily supply for himself.

Only one more point needs mention. It is not strictly within the limits of my subject, but must not be passed by. Negatives made with telephoto lenses must be fully developed, or they will appear much too thin. The eye ignores the illumination of the object by the intervening air, and, in the telephotograph, expects to find much the same contrast as it would in nature when the object was viewed from a much nearer standpoint. To satisfy this demand the contrast in the telephotograph must be increased, and the only way to do this is to develop fully.—*Photography.*

# Items of Interest

THE WOLLENSAK OPTICAL Co. have just put on the market a new medium priced shutter to take the place of their well-k-nown models of the Winner, Regular, and Automatic, and the new models show some decided improvements over the old. In all three of the new shutters which will be called, Victus, Regno, and Autex, the pumps are concealed within the case and the Autex has a special arrangement so it can be opened for focusing. These shutters are now ready in two sizes for use on lenses from  $4 \times 5$  to  $6\frac{1}{2} \times 8\frac{1}{2}$  and the other sizes are in preparation. The fact that the pumps and all working parts are concealed within the case is certainly a great advantage as nine-tenths of the shutter troubles come from the exposed mechanism. Other new goods offered by the Wollensak Co. this season are the Versar F6 for portraits, groups, and landscapes, and the Velostigmat, a new Anastigmat working at F6.8.

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THE PHOTOGRAPHIC LENS is worthy of careful attention, and although everyone desires to care for the lens properly, all do not know the proper procedure. "The care of the Lens" is a publication sent free by the Bausch & Lomb Optical Co., or may be had at your dealer's.

While many excellent photographs of crowds have been shown in times past, we have yet to see a more unusual one than "The Heads." This extraordinary picture is one of ten, comprising the Bausch & Lomb Optical Co.'s exhibit now being loaned to dealers in the larger cities. Everyone in the multitude shown is accurately portrayed making a huge group, which is full of interest. The facial expressions in this typical American holiday crowd are quite worth the time it takes to look them over. We would urge our readers to visit this exhibit should opportunity present itself.

\* \* \*

A NEW INVENTION.—The Northern Photo Supply Co. of Minneapolis, Minn., are manufacturing and have just placed upon the market

the Liberty Margin Ring, which is a most valuable little invention.

It is a simple little ring used for trimming oval masks to be used for marginal printing or when a white margin is desired on the finished print, which adds style and beauty to the photograph and gives the finished print a rich appearance.

The Liberty Margin Ring does entirely away with the margin trimmer as it can be used with any ordinary revolving trimmer as shown in illustration. It can be used with any sized form and is so constructed that it will not get out of order.

\* \* \*

WE TAKE THIS METHOD OF ANNOUNCING TO THE TRADE that after May 1st, we will not sell anything but our own products. Our large stock of photographic sundries has been purchased by Mr. G. Gennert, of New York. This action on our part is caused, primarily, by the steadily increasing demand for our goods, which makes the handling of other lines inexpedient.

We regret leaving a pleasant and lucrative field, even if we cannot repress the thrill of pride when we stop to think that it is the financial appreciation which has been accorded the goods of our own manufacture which makes this action necessary.

We sincerely thank you for your support in the past and hope that it may be extended to us now that we have blossomed forth as full-fledged manufacturers. If you do not happen to have our catalogue, let us send you one.

Very truly yours,

DEFENDER PHOTO SUPPLY Co.

\* \* \*

HOW MANY OF YOU are going in for those nice fat prizes offered by the Kodak Company in their 1908 Advertising Contest? Everyone of you we hope. If you do, bear this in mind, they want pictures that can be used for advertising purposes, such as illustrating their advertisements in the magazines, for booklet covers, posters, and street car signs, and to



be of any value to them, the pictures must tell some story showing the pleasures or advantages of the Kodak system of picture making. Just good photographs won't do, a pretty landscape or a group of people, or the fast mail caught on the fly, are not what they are after—such pictures may be interesting and good photographs, but they would not be available for the purpose.

\* \* \*

HAVE YOU TROUBLE in correctly counting time, or in accurately recording seconds in the various photographic processes in which it is necessary to make such observations. There's a method for doing so without a watch or clock as Harry Hall has discovered. Read the advertisement of the Berlin Aniline Works on the back inside cover, and you'll find out how to get full information on this curious and interesting method. The idea is certainly clever and reflects credit on Mr. Hall's ingenuity.

## IN MEMORIAM.

J. B. PELGRIFT.

*To the Editor of the Photographic Times:*

DEAR SIR:

I cannot allow the death of my dear, old friend, "Ben" Pelgrift, to pass into memory without recording in this public way my personal knowledge of his rare traits of heart and mind, and my personal affection for the man who, to an unusual degree, *was everybody's friend*. Every one who knew him, liked him. Many there are who, like myself and all his former business associates, genuinely loved the man.

He was loyalty personified. He could not do an unfaithful nor an unworthy thing. He was full of kindness for all men, even his most active competitors. Witness his touching friendship for the late "Col." George Ayers, who in his prime was "Ben's" greatest rival on the road.

And what a traveler he was! In his best days, the good old days of photography, "Ben" was an ideal traveling salesman and outside representative.

And with it all he was so modest, so simple; always so genial and cheery. It was like sunshine when he came into your office,

and now that he has gone out, never to return, there is left a void in our lives which time cannot fill, and the world seems a lonelier place to many, many of his old friends than it ever did before.

He has gone to a well-deserved rest and reward, God bless him, and we who remain for a little while longer, can never forget his lovable personality nor our personal loss in his death.

Very truly yours,

W. I. LINCOLN ADAMS.

Irvingcroft,  
32 Llewellyn Road, Montclair, N.J.,  
June 16th, 1908.

\$100 FOR MOTOR CAR PICTURE.—Prize offered for view of America's Champion in New York to Paris Race.

Amateur photographers all the way across the country from New York to San Francisco—and those of the old world as well—are interested in the prize contest just announced by the E. R. Thomas Motor Company of Buffalo, N. Y.

This company offers *one hundred* dollars cash for the best photograph of the Thomas car on the way from New York to Paris in the great International Automobile Race.

The contest is open only to amateurs. Any view of the Thomas car either running or standing at any point of the trip from New York to Paris is admissible. Each contestant is required to submit a negative and two prints of the picture he desires to enter. As the prize is for the best picture, each contestant may submit as many photographs as he has if he desires.

Prints and negatives must be accompanied by a letter from the contestant stating that they are submitted in competition for this prize.

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DEUTSCHER PHOTOGRAPHEN KALENDER, 27th year, 1908, Part 1, by Karl Schwier, published by the *Deutschen Photographen Zeitung*, Weimar, Germany, price Mk. 2.0. The almanac is in its usual handy pocket size. Full of information for the busy practical worker. There are 614 photographic recipes forming a valuable reference list. Also many tables. A list of the principal chemicals, as well as their composition and solubility.

JAHRBUCH FUER PHOTOGRAPHIE ZND REPRODUKTIONSTECHNIK, 21st year, 1908, by Dr. J. M. Eder, published by Wilhelm Knapp, Halle a.s. S. Germany, price Mk. 8.0. This is the largest of the several German year books. Contains about 750 pages, 290 text illustrations and 36 special art pictures in various processes. It has a splendid illustrated review of the year's novelties. A list of German, French and English photographic literature which appeared during the year 1907. This book is of special value to the scientific worker.

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INDIANA ASSOCIATION OF PHOTOGRAPHERS, at Winona Lake, Ind., July 20, 21, 22, 23, and 24, 1908. Special class, any style, size, or number. The Daguerre Memorial Institute Prize, best picture—"Diamond Medal of Honor." Conditions of award.—No picture shall be passed upon for this honor that is not properly titled.

Should the excellence of the picture chosen for this honor be judged not to be equal to the one chosen as best at our last annual meet, then the trustees reserve the right to retain the medal.

Publication and use of picture shall be under control of trustees.

Pictures shall be passed upon by two distinct sets of judges, the one selecting a number of three to five pictures, the other selects the one. Any false claims made by winner of medal forfeits all honors, and at the request of Trustees the same shall be surrendered.

Honors are open to the world—Indiana only excepted.

(All pictures in special class, if considered of sufficient merit, will be selected to adorn the walls of Daguerre Memorial Institute and will be awarded a certificate. All selected pictures must be framed at the expense of exhibitor.)

(No entrance fee for above class.)

State exhibit, portrait class. Exhibit to consist of six portraits of any size.

View Class. Exhibit to consist of six pictures of views or interiors.

Commercial Class. Exhibit to consist of six pictures of architectural construction or machinery, etc. Pictures to be any size.

1st. All exhibits in above classes receiving a rating of 85% or over to receive a gold badge.

2d. All exhibits receiving a rating of 75%, and under 85%, to receive a silver badge.

Special Prizes. Doehn Trophy, in charge of Otto Doehn, Indianapolis, who will furnish all information.

Artura Trophy, for best display of prints on Artura paper. Three pictures, any size. The winner of this trophy is to become the sole owner of same after the judges of this 1908 convention have made the award. The winning display to become the property of The Artura Photo Paper Co., Columbus, Ohio.

Bausch & Lomb Photographic Prize, any size or number. One No. 8 (8x10) B. & L. Zeiss, series 11b, Tessar lens, equivalent focus 12-inch; net price \$118.50, given for the best photograph, made with any of B. & L. lenses. This photo to become the property of Bausch & Lomb Opt. Co., Rochester, N. Y. This display will be hung separately and will be known as the Bausch-Lomb Exhibit.

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PHOTOGRAPHERS ASSOCIATION OF OKLAHOMA, Ninth Annual Convention and School of Photography, to be held at Oklahoma City, Oklahoma, 1908. Competition open to members of this Association only.

#### CLASSES AND AWARDS.

Prize Winners Class—Required: Four pictures, 9 inches or larger. One full figure, one three-quarter figure, one bust and one group.

A beautiful silver cup is the prize in this class.

Genre Class—Required: One picture any size. First and second prizes.

Class A—Required: Three pictures, 8 inches or larger. One full figure, one three-quarter figure, one bust. First and second prizes.

Class B—Required: Six pictures, cabinet size or larger. First and second prizes.

Class C—Required: Six photos, cabinet size. First and second prizes.

This class open only to photographers in towns of 2,000 population or less.

Rating Class—All member are required to enter this class. Required: Four pictures, cabinet size.

The Gannaway special gold medal is the prize in this class.

All photographers who have won first prize in the Grand Port. and A classes are required to enter the Prize Winners Class. Photographers who have won first prize in similar classes



in other states are also expected to enter the Prize Winner Class. Any member of the Association may enter this class, but after such entry has been made he would not be allowed to compete in lower classes.

Competitors in the Prize Winners Class may also enter the Rating and Genre classes.

Any photographer doing business in Oklahoma of good moral and professional standing, who will abide by the rules, is eligible to membership.

For any additional information write the Secretary, J. A. Shuck, El Reno, Okla.

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THE ART OF RETOUCHING SYSTEMATIZED, by Ida Lynch Hower. Published by A. C. McClurg & Co., Chicago, Ill. Price, \$1.00, postage 6 cents extra.

The art of portrait making by photography has made great progress during the past few years, and now, the work done by the ambitious portraitist has reached a perfection hitherto not thought possible. At the present time there is for this reason need for increased excellence in perfecting the negative for printing, and the retoucher is expected to do a much better grade of work than ever before. The practice of retouching photographic negatives should, then, be cultivated to a high degree of perfection by those who desire to reach results that are both necessary and pleasing.

This manual contains practical instructions in retouching, from the standpoint of over a quarter of a century of professional training on the part of the author, and those who will carefully follow them can soon become proficient in the art, and give their patrons correspondingly improved results.

\* \* \*

PERMANGANATE OF POTASSIUM, by Dr. Knott.—Go to your nearest druggist's and ask him for a pennyworth of potassium permanganate, rinse out one of your spare half-pint bottles, preferably one with a wide mouth (a pyrogallic acid bottle will do nicely), empty the crystals into it, and fill up with water. You have now an adjunct at hand for

your dark-room shelf, a panacea for many ills which is worth several times its cost to you from a time-saving point of view.

As hypo-eliminator it knows no equal. Should you at any time be short of water or for any other reason desirous of quickly finishing a negative, pour a few drops of your solution into the washing water, and allow your negative to soak in it for a time; whilst the water continues to lose its color, the hypo-eliminator is doing its work and oxidizing any residue that may remain in the film, but as soon as it retains its beautiful purple it has done its duty. Thus it not only chemically removes the fixing agent, but acts also as a most delicate test for the presence of the same. If you make the solution a little stronger, and acidulate with sulphuric acid, a minim or two to the half-pint, you have an excellent reducing agent, and one that will give points to Farmers' reducer, for it acts equally on the film. Again, if you are uncertain as to whether your prints are properly fixed, pour off a little of the washing water, and add one single drop of the stock solution, as before—if it retains its color, all is well; if it does not, give them a further wash. Should you be doubtful as to the cleanliness of your dishes, add a little of this powerful oxidizing agent and water, rinse well until the color has disappeared from the dish, and you can tone with security, as you have rendered the dish free of anything that is likely to confront you of a deleterious nature.

Perhaps the sink gives off an unpleasant smell, pour a few drops of this disinfectant down it, and all foul odor will cease for some time. Should you cut yourself with a sharp edge of glass, a dilute solution of the permanganate is the remedy, and don't be afraid of it, for in a dilute solution it is quite harmless to the blood stream, and it is a well-known antiseptic.

Should you suspect your drinking water of organic contamination, fill a tumbler with it, and add a single minim of the solution. If after a few minutes it still retains its color, go ahead, you can drink it with safety.

*Amateur Photographer.*

